DAVID BORNCAMP

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Work Experience

Space Telescope Science Institute **September 2013 – Present**

- **Research & Instrument Analyst (I, II & Senior Levels)**
  - As a member of the Hubble Space Telescope (HST) Advanced Camera for Surveys instrument team create, develop, and implement HST calibrations by creating Python, IDL, and Fortan programs. This includes creating, verifying, and delivering reference files such as darks, biases, and flat fields as well as performing transformations and generating coefficients for geometric distortion in the Wide Field Channel. Compose, publish and present reports documenting processes and calibrations produced.
  - Design and create a new project that directly increases the overall efficiency of HST by analyzing the variability of every pixel of the detector over the lifetime of the instrument that saves 98% of hot pixels.

Southwest Research Institute **August 2010 – September 2013**

- **Research Assistant**
  - Assist Marc Buie, PhD with photometry and spectroscopy of Pluto and with a Kuiper Belt Object search by creating using IDL programs and a MySQL database to analyze thousands of images to ascertain photometry and astrometry for Pluto and new KBO's. Discovered 36 KBO's that have been submitted to the MPC and work presented in peer reviewed papers and at professional conferences.
  - Assist Leslie Young, PhD and Cathy Olkin, PhD with high precision astrometry, data reduction, planning, observations and data collection for Pluto occultation events occurring in 2013.

Education

Towson University

Master of Science in Computer Science; December 2016

- Thesis Title: *Pixel History for Advanced Camera for Surveys Wide Field Channel*

University of Colorado at Boulder

Bachelor of Arts in Astronomy; May 2011

Front Range Community Collage

Computer Programming and Geographical Information Systems. Presidents list - December 2013

Skills

- Proficient with the following software & OS: Unix, Windows, Python, IDL, JavaScript, Java, C, C++ programming languages, SQL, GIT, Microsoft Office and Open Office products.
- Contributed to successful HST, Subaru, and Magellan proposals and obtained grants to conduct research.
- Perform observational astronomical studies at large, professional observatories (including Hubble Space Telescope Magellan Subaru, and others), reduce observations to produce and publish scientific results.
- Circuit Analysis including TTL logic.

Relevant Academic Courses

- Observation and Instrumentation (ASTR 3510&3520) - Upper lever course focused on the inner workings of operating a professional observatory and process related data. Gained image processing skills and methods for proving photometry and spectroscopy results.
- Data Mining (COSC 757) - Learn how to think about and analyze large amounts of data with statistical significance with a focus on machine learning techniques.
- Advanced Web Development (COSC 617) - Create modern websites using the MEAN stack using JavaScript through the process. Created a website to track shuttles moving between STScI campuses.
- Computer Vision and Image Processing (COSC 602) - Learn image processing and how a computer views the world by creating programs using C. Write a Python program to automatically detect and accurately mask satellite trails in astronomical images, achieving a 96% completeness and 1% false positive rate